

## IN THE CLAIMS:

1 (currently amended): An inspection apparatus for a circuit pattern, comprising:

an irradiating apparatus which is constructed by a plurality of lenses and irradiates light, a laser beam, or a charged particle beam onto a surface of a substrate on which a circuit pattern has been formed;

a detector for detecting a signal which is generated from said substrate;

a memory for temporarily storing the signal detected by said detector and visualized as an image;

a comparing apparatus for comparing said stored signal with a signal obtained by visualizing a corresponding comparison pattern in another region as an image;

a monitor for displaying a defect on said circuit pattern from a result in said comparing apparatus;

an input device for designating a size of a pixel for use in displaying an image of said defect on said monitor in accordance with the width of said circuit pattern; and

a processor responsive to said input device to set the size of a pixel at the detection of said signal to be displayed on said monitor in accordance with an input from said input device.

2 (currently amended): An inspection apparatus for a circuit pattern, comprising:

an irradiating apparatus which is constructed by a plurality of lenses and irradiates light, a laser beam, or a charged particle beam onto a surface of a substrate on which a circuit pattern has been formed;

a detector for detecting a signal which is generated from said substrate by said irradiation;

a memory for storing the signal obtained by said detector and visualized as an image, said memory storing an SEM image which is obtained by irradiating said charged particle beam only once to one region on the surface of said substrate;

a comparing apparatus for comparing said signal stored in said memory with a signal obtained by visualizing a corresponding comparison pattern in another region as an image;

a monitor for displaying a defect on said circuit pattern from a result in said comparing apparatus;

a defect classifying apparatus for extracting a feature of the defect on said circuit pattern included in said SEM image and classifying said defect; and

a processor programmed to cause said irradiating apparatus to irradiate said defect on said circuit pattern again, to obtain a fine image, after classifying said defect, and to cause said monitor to selectively display an image of the defect on said circuit pattern obtained from a result in said comparing apparatus or the SEM image obtained by irradiating again said charged particle beam to said defect on the basis of a result of the classification in said defect after classifying in said defect ~~classifying apparatus~~ classifying apparatus.

3 (currently amended): An inspection method for a circuit pattern, comprising the steps of:

forming an SEM image by irradiating a charged particle beam only once to one region on a surface of a substrate on which a circuit pattern has been formed;

detecting a signal which is generated from said substrate by said irradiation;

storing a signal obtained by said detection and visualized as an image;

comparing said stored signal with a signal obtained by visualizing a corresponding comparison pattern in another region as an image;

extracting a defect on said circuit pattern from a result of said comparison;

extracting a feature of said defect included in said SEM image;

classifying said defect from said feature;

irradiate said defect on said circuit pattern again after classifying said defect, to obtain a fine image; and

displaying an SEM image of said defect extracted from the result of said comparison after said classifying step formed by said step of irradiating again.

4 (currently amended): An inspection apparatus for a circuit pattern, comprising;

a first apparatus of a first type including:

an electron source for generating an electron beam;

an electronic optical apparatus which is constructed by a plurality of electronic lenses and irradiates said electron beam onto a surface of a substrate on which a circuit pattern has been formed;

a detector for detecting a signal which is generated from said substrate by said irradiation;

a defect extracting apparatus for visualizing the signal detected by said detector as an image and extracting a defect on said circuit pattern;

a second apparatus of a second type for examining and extracting the defect from the same circuit pattern;

a monitor for displaying, in overlapping manner, a first image of the defect extracted by said defect extracting apparatus, and a second image of the same defect obtained from said second apparatus, said first and second images being displayed in at least one of different colors and different manners.

5 (previously amended): An inspection system for a circuit pattern, comprising:

an electron beam appearance inspection apparatus having irradiating means which is constructed by a plurality of lenses and irradiates an electron beam to a plurality of regions on a surface of a substrate on which a circuit pattern has been formed, secondary signal detecting means for detecting signals which are generated secondarily from said plurality of regions by said irradiation, electron beam image forming means for forming electron beam images of said plurality of regions from said detected signals, image storing means for storing said electron beam images, and a display apparatus for displaying said electron beam images;

an external appearance inspection apparatus having defect image storing means in which a defect image of said circuit pattern has been stored; and

a processor programmed to control said display apparatus such that it simultaneously displays a wafer map display picture plane, an electron beam image display picture plane displaying said defect image stored in said image storing means, and a defect information display region displaying information about said defect displayed in said electron beam image display picture plane.

6-8 (cancelled)

9 (previously amended): An inspection system for a circuit pattern, comprising:

an inspection apparatus which has an irradiating apparatus including:

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Cont'd

a source irradiating light, a laser beam, or a charged particle beam,  
a plurality of lenses directing said light, laser beam, or charged particle beam to a substrate,

DI Cont'd  
a detector for detecting a signal which is generated from said substrate by said irradiation, and

a defect extracting apparatus for extracting a defect on said substrate on the basis of the signal detected by said detector, and for executing an inspection of said substrate and extracting a defect at the end of a predetermined manufacturing step among a plurality of manufacturing steps of forming a circuit pattern onto said substrate,

means for establishing a mark at a location near to a position of the defect detected by said inspection apparatus;

observing apparatus including:

an irradiating apparatus that is constructed by a plurality of electronic lenses and irradiates a charged particle beam onto said substrate,

a detector for detecting a signal which is generated from said substrate by said irradiation, and

an image display apparatus for displaying an image of said substrate on the basis of the signal detected by said detector, said observing apparatus observing said defect existing on said substrate or a part thereof on the basis of a result of the inspection by said inspection apparatus using said marking established at a near location to locate the position of said defect; and

transmitting means connected between said inspection apparatus and said observing apparatus, for transmitting said inspection result

10 (currently amended): An inspection method for a circuit pattern, comprising the steps of:

forming an SEM image by irradiating a charged particle beam only once to a surface of a substrate on which a circuit pattern has been formed;

detecting a signal which is generated from said substrate by said irradiation;

storing a signal obtained by said detection and visualized as an image;

comparing said stored signal with a signal obtained by visualizing a corresponding comparison pattern in another region as an image;

designating a size of pixel at the detection of said signal for use in displaying an image of a defect on said monitor in accordance with the width of said circuit pattern; and

displaying a defect on said circuit pattern obtained from a result of said comparison using said pixel size.

DI Cont'd  
11 (previously presented): An inspection method for a circuit pattern, comprising:

a forming an electron beam image by irradiating a charged particle beam onto a plurality of regions on a surface of a wafer substrate on which a circuit pattern has been formed,

detecting secondary signals which are generated secondarily from said plurality of regions by said irradiation,

forming electron beam images of said plurality of regions from said detected signals,

storing said electron beam images,

inspecting said substrate with external appearance inspection apparatus;

storing a defect image of said circuit pattern obtained from said external appearance inspection apparatus, and

simultaneously displaying:

a wafer map display picture plane,

an electron beam image display picture plane displaying information about said defect obtained from said electron beam image, and

a defect information display region displaying information about said defect displayed in said electron beam image display picture plane.

12 (currently amended): An inspection method for a circuit pattern, comprising:

using inspecting apparatus to:

irradiate light, a laser beam, or a charged particle beam onto a substrate;

detect a signal which is generated from said substrate by said irradiation;

extract a defect on said substrate on the basis of the signal detected;

execute an inspection of said substrate;

extract a defect at the end of a predetermined manufacturing step among a plurality of manufacturing steps of forming a circuit pattern onto said substrate; and

establish a mark at a location near to a position of the defect;

transmit the result of the inspection including the defect and the mark to  
observing apparatus; and

using the observing apparatus to:

irradiate[s] a charged particle beam onto said substrate;

detect a signal which is generated from said substrate by said irradiation;

display an image of said substrate on the basis of the signal detected; and

locate the defect existing on said substrate or a part thereof using said mark.

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Concluded